

Neutron Diffraction in the Pressure-Induced Superconducting Antiferromagnet CeIrSi₃

N. Aso^a, M. Takahashi^b, H. Yoshizawa^b, H. Iida^c, N. Kimura^c, and H. Aoki^c

^aFaculty of Science, University of the Ryukyus, Okinawa, Japan

^bNeutron Science Laboratory, Institute for Solid State Physics, University of Tokyo, Ibaraki, Japan

^cGraduate School of Science, Tohoku University, Sendai, Japan

Neutron diffraction experiments were performed to investigate a nature of the antiferromagnetic ordered phase of the pressure-induced superconductor CeIrSi₃.¹ We observed magnetic Bragg reflections below $T_N = 5.0$ for the first time, using a large single crystal grown by Czochralsky pulling method in a tetra-arc furnace. The magnetic structure is characterized by the incommensurate wave vector $Q = (\pm\delta_1, 0, 0.5 \mp \delta_2)$. The antiferromagnetic ordered state can be interpreted as a spin-density wave formation by taking account of the results on de Haas-van Alphen (dHvA) signals in CeIrSi₃ where the $4f$ -electrons of CeIrSi₃ are itinerant.

In the conference, we discuss the magnetic structure of CeIrSi₃ in connection with the results of the iso-structural compound CeRhSi₃.²

¹I. Sugitani, Y. Okuda, H. Shishido, T. Yamada, A. Thamizhavel, E. Yamamoto, T. D. Matsuda, Y. Haga, T. Takeuchi, R. Settai, and Y. Onuki, *J. Phys. Soc. Jpn* **75**, 043703 (2006).

²N. Aso, H. Miyano, H. Yoshizawa, N. Kimura, T. Komatsubara, and H. Aoki, *J. Mag. Mag. Mat.* **310**, 602 (2007).